THE BOSTON
MEDICAL AND SURGICAL JOURNAL.

VOL. XCIII. — THURSDAY, SEPTEMBER 30, 1875. — NO. 14.

A RARE FORM OF MONSTROSITY.

TWO CASES OF APPARENTLY TRUE HERMAPHRODITISM.

BY W. L. RICHARDSON, M. D.,
Physician to the Boston Lying-in-Hospital,
AND THOMAS DWIGHT, JR., M. D.,
Professor of Anatomy in the Medical School of Maine.

CASE I. The specimen to be described was received from Dr. H. Ferguson, of South Boston, in whose practice the case occurred, and who has furnished the following clinical history.

He was called December 5, 1874, to see a lady forty-four years of age, who had recently engaged him to attend her in her thirteenth confinement, which was expected about the last of January, 1875. He found her suffering from labor pains and vomiting. An examination showed what appeared to him to be a presentation of the placenta. There being no hæmorrhage, however, he left the patient, with a direction that he should be immediately called if any signs of hæmorrhage appeared. In about two hours he returned and found the breech presenting, with what he still believed to be the placenta. The absence of all hæmorrhage caused him to doubt the correctness of his diagnosis; and as everything seemed to be going on well he determined to await further developments. The labor progressed rapidly, and soon ended in the birth of the specimen to be described. The placenta was very small indeed, and came away soon after the delivery of the fœtus. The funis measured only four inches. The mother's convalescence was somewhat retarded by an attack of metritis, but she gradually recovered her previous health.

The fœtus measured, with the right leg extended, thirteen inches from the vertex to the heel. Its weight was six and three fourths pounds. The body was apparently well formed with the exception of the left leg, which was somewhat atrophied, especially in the foot. The left knee could be straightened only with difficulty. The upper extremities and the head were normal, including the cavity of the mouth.

The ossa pubis were somewhat separated. Opposite the normal position of the symphysis pubis was a small opening (Fig. 1, A) through which a bristle passed into the cavity of the small body (B) which lay in the median line of the cloaca to be described. Below this opening was a triangular depression covered with integument; the base of the triangle being the line uniting the superior borders of the pubes, and the sides meeting at a point midway between the tuberosities of the ischia. There was no trace of an anus. To the left of the upper part of this triangular depression was a fold (C) of the integument, projecting from the front of the thigh, measuring five eighths of an inch, and having a base three fourths of an inch long, which ran in a slightly oblique direction from above downwards, and from without inwards. The appearance of this fold was suggestive of a labium or scrotum. At a point nearly corresponding on the opposite side, the skin was wrinkled and loosely attached, but formed no projecting fold.

The pelvis and lower extremities turned freely to the left from a point in the lumbar region of the spine. They could be brought straight but could not be carried at all to the right. The pelvic region was broad, flattened, and without any furrow between the nates.

The front of the abdomen presented two distinct openings, a ventral hernia and an ectopion of the bladder, or, more properly speaking, a cloaca. A spina bifida appeared on dissection. The various anomalies will be discussed in the following order: —

1. The ventral hernia and abdominal contents.
2. The cloaca.
3. The soft parts concerned in the spina bifida.
4. The skeleton.
5. The circulatory system.

1. *Ventral Hernia.* — The anterior abdominal wall was wanting, from about an inch below the ensiform cartilage to a point near the pubes, and this opening descended to the right of the cloaca, involving nearly the whole of the abdominal wall. Through the opening the whole of the abdominal viscera protruded. All around it, the integument was fused with the fœtal membranes, a small piece of the placenta being attached to the upper portion of the integument. From the upper part of this line of union hung a piece of the fœtal membranes (D) ten inches long and eight inches wide, the torn edges of the former line of attachment being continued around the abdominal opening. On the line of junction of the membranes and integument, about two inches of the umbilical cord (E) was attached at a point three eighths of an inch to the left of the median line. In several places the fold surrounding the opening was easily separated into three layers, namely, the skin, the fœtal membranes, and the peritoneal covering of the fissure. In the cavity were to be seen the liver, spleen, stomach, intestines, pancreas, and testes.

After the removal of the skin and fascia of the abdominal walls, the recti muscles were found on either side of the fissure; that on the left being far more developed than the other, and having the external oblique muscle inserted into its outer edge. The external oblique of the right side was represented only by a few fasciculi, the rectus muscle itself being very weak. Between the arch of the ribs above was a mere membrane (fascia transversalis ?).

The liver, spleen, pancreas, and stomach presented nothing abnormal. The small intestine was forty-two inches in length, and opened by a very minute passage into a large sac which formed a part of the cloaca. On the posterior surface of this sac was a small vermiform appendix, by which it was identified as the cæcum. All other parts of the large intestine were wanting. Behind the peritoneum both supra-renal capsules were found of normal size, but the left kidney was wanting. A little more than an inch below the right kidney the ureter suddenly enlarged into a pouch of double its primary diameter, and from this point it was attached by a fold of the peritoneum to the right surface of the cloaca. This attached portion was about two inches long. Its calibre was somewhat lessened for a short distance after the above-mentioned dilatation, but it again enlarged gradually until its termination. Its general shape was pyriform. Above and below the dilatation, the mucous membrane was thrown into numerous longitudinal folds, although the lining membrane of the dilatation itself was smooth and glistening. Two reddish, flattened, oblong bodies, about three fourths of an inch long, with peritoneal coverings, were placed in front and somewhat below the normal position of the kidneys. Their long diameters were vertical. A careful microscopical examination showed these bodies to be testes at an early stage of development. [This point will be further considered hereafter.]

2. *Cloaca.* — The lining membrane of this cavity presented two distinct characters; one clearly of intestinal, the other of vesical origin. The intestinal portion (F) was above and to the right. Into this projected a fold of the intestines exactly as the cervix uteri projects into the vagina. Both surfaces of this projection were covered with longitudinal folds, and the remaining intestinal surface of the cloaca was thrown into irregular circular ones. Through this invagination a probe passed into the cæcum, into which the intestines have already been described as opening. Numerous small pouches were observed in the walls of the cæcum. A lightish green meconium was found in the cavity of the dilatation, while that which for a distance of nineteen inches filled the small intestines, was dark green. The remainder (G) of the cloaca was lined with a smooth mucous membrane presenting a marked contrast with the above. Although the greater part of the anterior wall was wanting, a transverse fold (H), the outer surface of which was continuous with the skin, extended upwards for half an inch above the pubes. Within this fold and in the median line was a pear-shaped body (B) about three eighths of an inch in length, the posterior surface of which

was attached in the median line by a fold of mucous membrane (resembling the frenum linguæ) to the smooth portion of the walls of the cloaca. A smaller anterior fold of mucous membrane ran to the transverse fold which has been described as lying above the pubes. This body was hollow and communicated by a passage with the sub-pubic opening as already mentioned. It appeared, on microscopical examination, to be made up entirely of fibrous and involuntary muscular tissue. On either side of this lay a prominent fold of mucous membrane (I), the two being connected together by a smaller transverse fold lying in front of this body. The fold on the right was also in apposition with the front of this body; that on the left was the larger of the two. The fold contained loose areolar tissue but no cavities. The two sides of the smooth part of the cloaca were nearly symmetrical. Two small depressions (K) resembling pin-holes were to be seen towards the superior and outer angles of the cloaca, the right one (into which a probe passed one fourth of an inch) being opposite the blind end of the ureter; but no structure whatever could be found behind the left one. The lower part of the right side of this smooth portion of the cloaca presented one or two small folds in the mucous membrane.

3. *Spina Bifida; Soft Parts.* — The spinal arches were wanting in the greater part of the sacral and coccygeal regions, and from the opening a funnel-like projection of the spinal membranes protruded, ending in a sac (perhaps half an inch in diameter) lying in the fat of the perineal region. The sac, lined with a glistening membrane, was connected by a small opening with the above-mentioned funnel-like projection. The funnel opened above into a canal which ran into the sacrum, beyond which it could not be traced. The end of the spinal cord lay to the right of this sac, concealed in another membranous envelope. The nerves given off from the left of this part of the cord passed through its enveloping membranes and, in part at least, were lost in the walls of the sac and funnel. Some, however, communicated with a large nerve lying to the left of this funnel; the origin of this nerve lay too high up in the canal to be accurately traced, but it joined another root and became the left great sciatic. The lower end of the cord appeared to be a detached piece, less than half an inch in length, which gave off several branches forming the right great sciatic.

4. *Skeleton.* — The length of the spine anteriorly was about five and three fourths inches. At the upper part of the lumbar region, the spinal column took a sudden turn to the left, forming almost a right angle. It could easily be bent farther to the left, but could be moved only with difficulty to the right. The left ribs were normal; the right bent suddenly forward at their angles, converting the right thoracic cavity into a mere groove. The lower part of the lumbar region projected forward and the upper slightly backward. The anterior surface of the sacrum

and coccyx was concave. The tip of the coccyx, deflected a little to the right, lay on the same plane as the separated pubic bones. The two bones of the pubes were one inch apart at their upper border. A band (Fig. 2, a) composed almost wholly of muscular fibres, connected the bodies of the pubes, passing behind the coccyx, to which it was attached. A fibrous band, having its origin apparently in the upper part of the posterior surface of the first sacral vertebra, and being further attached to the crest of the ilium, ran to the last rib on the left side and was one of the causes which hindered a lateral flexion of the spinal column to the right.

Seen from behind the ilia were greatly spread out, the posterior superior spinous processes being almost in contact with each other; the spinous process of the last lumbar vertebra appeared just above this point. The arches of the sacral vertebræ were wanting. From each of the abovementioned processes a strong band of fibres (b), representing probably the great sacro-sciatic ligament, extended to the tuberosities of the ischia, and the two were connected by a transverse band (c), thus forming a quadrilateral opening, through which the hernia of the spinal membranes passed. From each of these ligaments a fibrous septum ran outwards and forwards to the edges of the sacrum, the right edge of which was decidedly more developed than the left.[1] The space behind the lower part of the sacrum and coccyx, and in front of the band connecting the sacro-sciatic ligaments, was filled with areolar tissue.

A careful examination of the anterior surface of the spinal column showed nothing remarkable in the cervical or dorsal vertebræ above the ninth.• (Fig. 3, 1.) The bodies of the ninth, tenth, eleventh, and twelfth dorsal vertebræ presented respectively two osseous nuclei, separated by a strip of cartilage lying in the median line. The last two dorsal vertebræ were smaller than the others and their nuclei very unsymmetrical. At this point, the lateral flexion of the column was greatest. There were only four lumbar vertebræ; all of these were normal except the second (2) the body of which had two distinct nuclei. The first sacral (3) vertebra had its lateral processes well developed, although the right one was broken by the general distortion of that side. The first sacral vertebra was the only one which touched the ilium. The bodies were very irregularly shaped. The first vertebra was the only normal one, and even the number of the bodies of the sacral and coccygeal vertebræ could not be made out.

Viewed posteriorly, the spinal column appeared normal above the tenth dorsal vertebra, in which the arches met unsymmetrically to form the spinous process. The arches of the eleventh and twelfth were very uneven, and the structure was further complicated by the appearance of cartilaginous plates between the arches of the adjoining vertebræ on their right side. The arches of the lumbar vertebræ were very imperfectly ossified on the left, while on the right they were well advanced except in the second, of which the right side of the arch appeared to be wanting. The arch of the fourth (on the right side) was a broad plate apparently continuous with a part of that of the first sacral, although this relation could not be verified without injuring the specimen. The lumbar region was very unsymmetrical. The ossification of the posterior surface of the sacrum and coccyx was so irregular that it was impossible to determine the number of vertebræ. On the sides were two rows of transverse processes, fully ossified and united by bone around the sacral foramina. Some slight indications (of the size of pin-holes) of anterior foramina were to be seen on the posterior surface, but none came through to the front. The coccyx was bent strongly forward and contained some osseous formation.

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[1] The septa, which were very delicate, were removed before the drawing was made.

5. *Circulatory System.* — The heart was broad and flattened. Its greatest breadth, at the auriculo-ventricular groove, measured one inch and an eighth; its height from base to apex was about the same. The aorta curved normally to the left, giving off its regular branches. A small, cord-like, impervious pulmonary artery, hardly more than a millimetre in diameter, lay close to the left of the origin of the aorta. About one eighth of an inch from this point it became larger, and, giving off a right and a left branch, was continued as the ductus arteriosus through which the lungs were supplied. The right auricle was well developed, having a prominent auricular appendage. There was no appendage to the left auricle. The heart being opened the venæ cavæ were found to be normal. There was a small Eustachian valve. Two openings into the left auricle were to be seen; the posterior and inferior was the larger, and appeared like a defect in the wall; the other was apparently the foramen ovale. The anterior and posterior edges of this opening had a somewhat valvular arrangement, the anterior being to the right. The auriculo-ventricular valve consisted of a right and a left segment, with a third smaller one in front and to the left, behind the place where the conus arteriosus, which was very rudimentary, should be. Just behind and below this minute conus was a triangular inter-ventricular opening, the apex of which was downward and the greatest diameter nearly one quarter of an inch. At the left anterior extremity the cavity extended a little upward, where there was a slight depression leading toward the pulmonary artery, with which, however, there was no communication. The left auricle was very small, and, until opened, appeared little else than a cavity in the wall of the right one, but it was found to be partially divided into two cavities. Opened from the left side, this cavity, into which one pulmonary vein emptied, communicated by the posterior of the two openings already mentioned with the right auricle. Another aperture in the membranous wall led

into a third cavity, which communicated by the foramen ovale with the right auricle; this appeared to be the real auricle. The front bore some faint resemblance internally to an appendage, and two pulmonary veins opened into it. It also communicated by a narrow opening with the left ventricle. The mitral valve consisted of two folds. The walls of the left ventricle were about as thick as those of the right, but the cavity was much smaller. The aperture between the ventricles was clearly seen, and near it was the entrance to the aorta. There was some semblance of a conus arteriosus in the left ventricle below the origin of the aorta, which was thus placed in order to receive the blood from both ventricles. Had it been a little more to the right it would have been just above the opening in the septum.

The umbilical cord was found to contain the vein and the left umbilical artery, the course of which was normal.

The right common iliac was wanting. Both iliacs, of which the internal was the smaller, arose on that side directly from the aorta.

The ductus venosus was normal, as was also the venous system as far as it was examined.

The specimen just described deserves especial notice for a number of reasons. In the first place, such a monstrosity is extremely rare. Neither Förster [1] nor Saint-Hilaire [2] in their admirable works on teratology describes such a peculiar combination of malformations. In the second place, we found great difficulty in determining the sex. There were no external organs of generation whatever. The cutaneous folds on the thighs might be rudiments of either a scrotum or of labia. The testes were made out by the existence of many more or less convoluted tubes and by the absence of anything approaching in appearance to ova. The only possible question as to the correctness of this view is whether the organs might not have been merely remains of the Wolffian bodies; but their shape showed that they were no longer in a very rudimentary stage, and their position (the long diameter being vertical [3]) as well as their microscopical appearances excluded the possibility of their being ovaries. The body marked B (Fig. 1) is the most difficult of all to explain. The abundance of muscular fibre in its structure (no traces whatever of glands being found), together with its passage through the perinæum, indicated strongly its uterine signification. It is to be remembered, however, that its position was adverse to its being the uterus; and the only way of accounting for it is by supposing that the inferior wall of the bladder would, in a more developed condition, have come forward over it. The folds on either side of the organ and meeting in front of it were superficially suggestive of the broad ligaments, but they

[1] Die Missbildungen des Menschen. A. Förster.

[2] Histoire générale et particulière des Anomalies. M. I. G. Saint-Hilaire.

[3] Entwicklungs Geschichte. Kölliker.

could not be so accepted, their anterior attachment to the body described and their union at that point opposing such a view. Without venturing to express any opinion as to its nature, we would merely remark that if the body (B) were the uterus (as its structure appeared to indicate) we have here a remarkable specimen of perfect hermaphroditism.

The peculiarities in the ossification of the vertebræ are very interesting. Many cases of monstrosity have shown two nuclei in the vertebral bodies, but it is still doubtful if more than one is ever found in the normal fœtus. It is also a curious fact that there was no regularity in this duplication. In the first lumbar vertebra there was but one nucleus, while there were two in the second as well as in the lower dorsal vertebræ. There were some indications of regular ossification on the sides of the sacrum, but the bodies were quite incomprehensible.

The heart presented an anomaly which Rokitansky would call a defect in the posterior part of the anterior septum. We do not find, however, that in his recent magnificent monograph on defects in the septum he records any case exactly corresponding with this one.

The deficiency of one of the umbilical arteries is common (W. Vrolik) in cases of this nature, but the irregular origin of the right external iliac is worthy of notice.

CASE II. Some months after the examination of the specimen just described, by a curious coincidence, another, very similar to it, was discovered in the Museum of the Medical School of Maine. On the jar was written "Fœtus of 7½ mos.," and no further history can be obtained.

The length from vertex to heel was eleven and a half inches. The head and limbs were well formed, with the exception of the feet, which were somewhat distorted. The pelvis and legs could be bent laterally on the body, precisely as in the first specimen,[1] but in the opposite direction; thus they could be brought up to the right so as to form a right angle with the body, but not at all to the left.[2] The nates and perinæum were precisely as in A. The pubic bones were half an inch apart. The folds on the thighs (Fig. 4, Z) were larger than in A, the left one being nearly half an inch long. There was no umbilical cord, but the membranes from the side of the placenta (Y) went to form the anterior wall of the abdomen, where the skin and muscles were deficient; in other words, the membranes formed the sac of a ventral hernia. In most places three layers could be distinguished, of which the outer was continuous with the skin and the inner with the peritoneum. In this specimen there was an opening, apparently artificial, through the membranes into the abdomen (X). A strip of skin of nearly normal ap-

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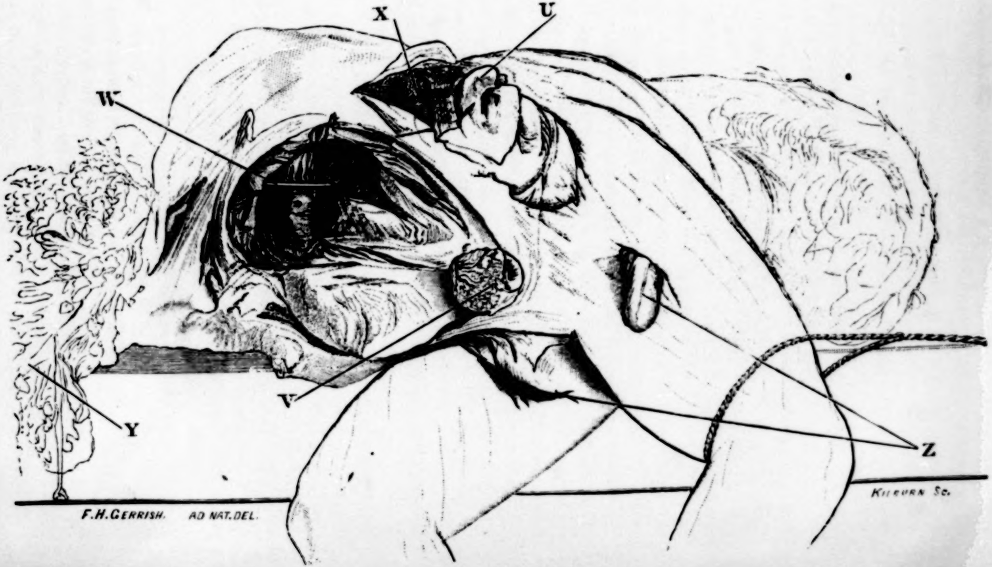
[1] For convenience the first specimen will hereafter be called A and the second one B.

[2] As Figure 4 might at first sight give a different impression, it is proper to state that the deceptive appearance is due to the throwing of the head to the left.

Fig. 4.



F.H.GERRISH. AD NAT. DEL.

KILBURN Sc.

pearance separated the abdominal opening from that of the cloaca below.

The Cloaca differed but slightly from that of A. There was both an intestinal and a vesical portion. A small opening (at W) served for communication with the bowel, which did not project as in the other case. There were no indications of openings into the ureters. The body (V) which was supposed to represent the uterus was decidedly larger than in A. It had a similar communication with the perinæum. The fold forming the rudimentary anterior wall of the bladder passed in front of its origin. There were in B no lateral appendages. The upper surface of the organ presented a number of very small depressions, giving it a cribriform appearance; and one of them communicated by a minute canal with the central passage from the perinæum.

Contents of Abdomen. — Except in the following respects there was little worthy of notice. There was no large intestine save the dilatation that formed a part of the cloaca, and which was thrown into several folds but did not have a vermiform appendix, as in A. The small intestine was shorter than normal, but it was not thought proper to remove it for measurement. The ureters, dilated and tortuous, ended blindly on the posterior surface of the cloaca. The spleen was very small. The two bodies held to be testes were present and had the same gross characteristics as in A. That on the left side, (U) was the larger and was removed for microscopical examination.

This was much more satisfactory than in A. The organ was shown to be subdivided into a number of cavities by fibrous septa. These cavities were filled, some with tubules, some with collections of small cells. The tubules were of two kinds: those most generally found consisted of a membrana propria surrounded by a delicate fibrous sheath; they were full of cellular elements. No part of the contents could be distinguished from the rest as an epithelial lining. The tubes of the other kind were found on but one side of the specimen. They were decidedly larger, and had thicker walls and a well-marked lining of columnar epithelium surrounding a central cavity. The tubules of both kinds were very much convoluted. No blind extremities were observed.

The specimens from A were essentially the same, with the exception that they were chiefly composed of cellular and fibrous elements, with comparatively few tubules among them.

Circulatory System. — The heart was normal, as was also the arrangement of the branches from the aorta. The absence of the umbilical cord, though not unknown, is a very rare anomaly, but in point of fact it is of little importance as far as the nutrition of the fœtus is concerned, for the umbilical vein and one artery were present. As already stated, the absence of one umbilical artery is very common, not to say the rule, in cases of this kind, but in B it was the left one, instead of the right, as in A, that was wanting. The abdominal aorta appeared to terminate in the right hypogastric artery, the right external iliac and the left common one being very small. The right hypogastric reached the integument above the right pubic bone, and ran upward along the right border of the cloaca to the strip of skin between the two openings. It was here joined by the umbilical vein, which ran along the right side of the ventral opening to the attachment of the falciform ligament of the liver, along which it coursed. In the other direction the vein kept company with the artery, and the two ran together into the attached border of the placenta. They could be traced for some distance on the surface of that organ to a knob-like prominence, formed chiefly by the vein, at which they broke up into branches.

The Skeleton was not examined, as it was thought proper to preserve the specimen, but an incision in the back showed that there was a spina bifida apparently in both the lumbar and sacral regions.

The resemblance between these two specimens is certainly very remarkable. The absence of the cord in B does not appear to be of much importance. The two chief differences are the greater simplicity of the cloaca in B, the rather surprising fact that the heart is normal, the more marked characteristics of the testis in B, and the absence of one kidney in A. It is interesting to notice that the lower extremities bend to the left in A and to the right in B, that is, in both cases toward the side on which the hypogastric artery was present; but it is very doubtful if this is more than a coincidence. It will be observed that both specimens were the result of a miscarriage at the same stage of development (seven and a half months).

DESCRIPTION OF FIGURES.

Figures 1, 2, and 3, drawn by Dr. H. P. Quincy, are different views of the first specimen.

Fig. 1. A (the line from the letter runs one quarter of an inch inside the outline of the drawing), the perineal opening of the canal from B; supposed to be the uterus; C, rudiments of labia or scrotum; D, fœtal membranes; E, umbilical cord; F, opening of intestine; G, vesical portion of cloaca; H, transverse fold, a rudiment of the anterior abdominal wall; I, folds of mucous membrane; K, depressions in vesical portion of cloaca (the right one opposite to end of ureter).

Fig. 2. a, band connecting pubic bones; b, great sacro-sciatic ligaments; c, band connecting the two latter.

Fig. 3. 1, ninth dorsal vertebra; 2, second lumbar vertebra; 3, first sacral vertebra.

Fig. 4 represents the second specimen.[1] Z, rudiments of labia or scrotum; Y, placenta; X, cavity of abdomen seen through an opening made in the membranes; W, a probe in the opening of the intestine; V, supposed uterus; u, uterus.

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[1] I wish to acknowledge the kindness of my colleague, Professor Gerrish, in making this drawing. T. D. Jr.

RECENT PROGRESS IN PUBLIC HYGIENE.

BY F. W. DRAPER, M. D.

FILTH-DISEASES AND THEIR PREVENTION.

THE most valuable and suggestive among the recent contributions to the literature of sanitary science is by Mr. John Simon, the Medical Officer of the British Privy Council and Local Government Board.[1] He discusses the fundamental principles of preventive medicine with a comprehensiveness and originality to which only scant justice can be done in the brief outline presented here. The report is divided into three parts: (1) the diseases produced by filth; (2) the forms in which filth is found producing disease; and (3) the prevention of filth diseases. After remarking that the needless deaths in Great Britain number annually more than one hundred and twenty-five thousand, distributed unequally in different sections of the country, but most numerous in concurrence with removable influences hostile to life, the author states that two classes of controllable or preventable conditions stand conspicuous in their relation to disease and mortality, namely, the failure (through neglect or ignorance) to remove refuse matters, solid and liquid, from inhabited places, and the freedom with which dangerous infectious diseases are permitted to scatter abroad the seeds of their infection. The present report deals with the former of these evils. While acknowledging that filth in its generic sense has long been recognized by medical men as standing in close causative relation to disease, Mr. Simon insists that it is only the cruder, sensible characters of uncleanliness that have attracted attention, and that a far more important element, the subtle action of zymotic poison, has been made manifest only by recent researches. "The exacter studies of modern times," he says, "have shown that by various channels of indirect and clandestine influence, filth can operate far more subtly and also far more widely and more destructively than our forefathers conjectured." These studies demonstrate that "the chief morbific agencies in filth are other than those chemically identified stinking gaseous products of organic decomposition which force themselves on popular attention." The filth which we smell and see is harmful in proportion to its palpable amount; but the far more mischievous possibilities are such as apparently must be attributed to morbific ferments or contagia; these are not gaseous, but seem to have their essence in certain solid elements which the microscope discovers in them; in living organisms, which, by virtue of their vitality, are indefinitely self-multiplying within their respective spheres of operation. As it is by these organisms that filth probably produces zymotic disease, it is necessary not to confound them with the fœtid gases of organic decomposition. It is of the utmost practical importance to recognize, in regard to filth, that agents which destroy its stink may yet leave all its main powers of disease-production undiminished. Moreover, it is characteristic of the zymotic ferments that "they show no power of active diffusion in dry air; diffusing in it only as they are passively wafted, and then probably, if the air be freely open, not carrying their vitality far; but as moisture is their normal medium, currents of humid air (as from drains and sewers) can doubtless lift them in their full effectiveness."

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[1] Public Health Reports of the Medical Officer of the Privy Council and Local Government Board, New Series. No. II. Supplementary Report to the Local Government Board on some recent Inquiries under the Public Health Act, 1858.

Of diseases which are produced by filth, the diarrhœas are the best illustration. Mr. Simon says, "Among the effects which arise under experimental septic infections, as likewise in cases of accidental septicæmia in the human subject, acute catarrh of the mucous membrane of the intestines is an extremely prominent fact. The mucous membrane of the intestinal canal seems peculiarly to bear the stress of all accidental putridities which enter the blood. Whether they have been breathed or drunk or eaten, or sucked up into the blood-vessels from the surface of foul sores, or directly injected into blood-vessels by the physiological experimenter, there the effect may be looked for; just as wine, however administered, would 'get into the head,' so the septic ferment, whencesoever it may have entered the blood, is apt to find its way thence to the bowels, and there, as a universal result, to produce diarrhœa."

The discussion of the etiology of enteric fever is particularly suggestive, inasmuch as that affection is considered the type of a large class of preventable diseases. The author sums up his mature experience in this direction as follows: "The explanation of the frequent tendency of privy-nuisances to infect with enteric fever has seemed to consist in the liability of such nuisances to carry with them, as frequent accidental adjuncts, the 'specific' contagium of any prevailing bowel-infection; for presumably the privies of a population receive (*inter alia*) the diarrhœal discharges of the sick; and it has long been matter of fair pathological presumption that in any 'specific' diarrhœa (such as eminently is enteric fever) every discharge from the bowels must teem with the contagium of the disease. Medical knowledge in support of this presumption has of late been rapidly growing more positive and precise; and at the moment of my present writing it has received an increase which may be of critical importance, in the discovery, namely, of microscopical forms, apparently of the lowest vegetable life, multiplying to innumerable swarms in the intestinal tissues of the sick, penetrating on the one hand from the mucous surface into the general system of the patient, and contributory on the other hand, with whatever infective power they represent, to the bowel-contents which have presently to pass forth from him."

Passing from the study of affections whose development appears to be intimately related with the seeds of morbific infection as conveyed by human excrement in air and water, the author refers at some length to the influence of other kinds of filth in producing disease. He considers it among the most hopeful advances of modern preventive medicine that some diseases which, in the sense of being able to continue their species from man to man, are apparently as "specific" as small-pox or syphilis, seem now beginning to confess a birthplace exterior to man, and amid controllable conditions in the physical nature around us, amid the putrefactive changes of dead organic matter. Reasoning from the suggestive results which experimental physiology has produced in propagating within the living body the septic germs, he indicates the strong probability that peritonitis, erysipelas, pyæmia, septicæmia, puerperal fever, even tuberculosis, will be found to have a closer relation to filth-inoculation than as yet appears.

In the second part of his paper, Mr. Simon describes the forms in which filth is found producing disease. His graphic account of a too familiar condition of things applies so well to many communities in our own country that it should not be condensed: —

"There are houses, there are groups of houses, there are whole villages, there are considerable sections of towns, there are even entire and not small towns, where general slovenliness in everything which relates to the removal of refuse-matter, slovenliness which in very many cases amounts to utter bestiality of neglect, is the local habit; where, within or just outside each house, or in spaces common to many houses, lies for an indefinite time, undergoing fœtid decomposition, more or less of the putrefiable refuse which house-life and some sorts of trade-life produce; excrement of man and brute, and garbage of all sorts, and ponded slop-waters; sometimes lying bare on the common surface, sometimes unintentionally stored out of sight and recollection in drains or sewers which cannot carry them away, sometimes held in receptacles specially provided to favor accumulation, as privy-pits and other cess-pools for excrement and slop-water, and so-called dust-bins receiving kitchen-refuse and other filth. And with this state of things, be it on large or on small scale, two chief sorts of danger to life arise: one, that volatile effluvia from the refuse pollute the surrounding air and everything which it contains; the other, that the liquid parts of the refuse pass by soakage or leakage into the surrounding soil, to mingle there of course in whatever water the soil yields, and in certain cases thus to occasion the deadliest pollution of wells and springs. To a really immense extent, to an extent indeed which persons unpracticed in sanitary inspection could scarcely find themselves able to imagine, dangers of these two sorts are prevailing throughout the length and breadth of this country, not only in their slighter degrees, but in degrees which are gross and scandalous, and very often, I repeat, truly bestial."

The various sources of excremental infection from defective sewerage are pointed out. Especially is indicated how often house drainage, though arranged with good workmanlike intention, has failed for want of skilled guidance.

Finally, the report deals with the prevention of filth-diseases, and presents comprehensive views of sanitary administration with reference to a radical and thorough treatment of morbific conditions. The remarks upon chemical disinfection are very suggestive: "To chemically disinfect (in the true sense of that word) the filth of any neglected district, to follow the body and branchings of the filth with really effective chemical treatment, to thoroughly destroy or counteract it in muck-heaps, and cess-pools, and ash-pits, and sewers, and drains, and where soaking into wells, and where exhaling into houses, cannot, I apprehend, be proposed as physically possible. Again and again a district has been found under some terrible visitation of enteric fever, from filth-infection operating through house drains or water-supply; but with the local authority inactive as to the true cause of the mischief, and only bent on practicing about the place, under the name of disinfection, some futile ceremony of vague chemical libations or powderings. Conduct such as this, referring apparently rather to some mythical 'epidemic influence' than to the known causes of disease, and savoring rather of superstitious observance than of rational recourse to chemistry, is eminently not that by which filth-diseases can be prevented; and, contrasting it therefore with means by which that result can be secured, I would here specially note a warning against it."

THE DISPOSAL OF SEWAGE.

The important subjects of drainage and sewerage continue to attract attention among sanitarians at home and abroad, and the journals contain reports of animated and instructive, if not conclusive, discussions concerning the best methods of removing the refuse and excremental products of domestic life. It is natural and proper that such matters should claim extraordinary notice, for they touch intimately the elementary and fundamental principles of sanitary science. Defective drainage violates the first rule of hygiene — the preservation of cleanliness.

It is unfortunate for sanitarians that they must generally modify their ideas to suit practical and economic ends. The popular mind has not reached the point of appreciating that public health is public wealth. Hence any new plan for getting rid of excremental refuse is deemed practicable, provided it can insure a dividend, direct or indirect; so that the various schemes habitually append to the recital of their respective sanitary advantages a claim of superior economy and of larger fruits, whether the product be gigantic vegetables from sewage farms or bags of poudrette from precipitating tanks.

It may be useful for the purposes of this report to note briefly some of the methods whose merits or demerits have recently challenged the critical attention of sanitarians.

Pneumatic Sewerage. — Captain Liernur, the originator of the pneumatic or "separate" system, maintains that all putrescible matters, the sink-refuse and the excrement, should be conveyed away from houses through air-tight conduits which will not permit the pollution of subsoil air and water to such a degree as is possible with the porous water-carriage sewers generally in use. He provides a separate system for the conveyance of surface water and refuse water, and aims to keep the urinary and fæcal excreta undiluted. The latter material (nightsoil) he removes as follows by atmospheric pressure before decomposition occurs. All the closets of a block of houses are connected by means of iron pipes with an iron main tube in the street; the street main in turn discharges into a tank, but a stop-cock shuts off the connection with the houses when the pneumatic process is not in operation. To the tank is attached the air-pump engine by which, when it is working, a partial vacuum is maintained. At certain hours men visit the street mains and open the stop-cocks; at once the excretory matters of all the houses (a hundred or more) in connection with the mains are sucked into the receiving tank. Here, owing to its small bulk, the excrement can be easily dealt with either by immediate distribution to the soil or by conversion into poudrette.

The advantages of this plan of pneumatic pressure are obvious: the sewer gas is drawn away from the houses; there is no necessity for the profuse employment of water for flushing purposes; as the sewage is not diluted, no expensive arrangements are required to prepare it for use as manure; and the system operates independently of the house-occupants, doing its work without their interference. The scheme is well adapted for inland places which have no natural outfall for their sewage, or which cannot supply water in quantity for flushing, or whose topography does not admit such a fall to the sewers as to prevent the deposit of sewage in them. Certain towns in Holland (Amsterdam, Leyden, the Hague) have adopted this method, and it is represented as giving general satisfaction to householders and to the sanitary authorities.

The Goux System. — This is a modification of the dry-earth or Moule method of getting rid of fæcal matter, and it aims to do all that the earth-closet accomplishes, without the costly apparatus and special appliances required by the latter. No machinery is needed, the perfect action of the method depending on the fidelity of the person in charge of it. A particular kind of soil and its careful drying are dispensed with, and ordinary refuse, such as stable litter, loft sweepings, leaves, and sawdust, is used, mixed with charcoal, soot, or gypsum. A tapering tub or container is provided, sixteen inches high and twenty inches at its greatest diameter. Upon the bottom of this is placed the absorbent matter, as above described, to the depth of four inches. A mold of the same shape as the tub, but of six inches less diameter, is placed within the latter, and the space between the two is packed with refuse. The mold is then withdrawn, and the tub is placed under the privy seat. The materials on the bottom and around the side of the container absorb the liquid excreta. The tub remains under the seat for one week if for ten persons, or a fortnight for six persons. The manure resulting from this method is said to be superior to that produced under the dry-earth plan.

Sewage Farming. — This industry, which aims to utilize excretal refuse and at the same time by soil-filtration to destroy its noxious character, continues to afford fruitful opportunity for discussion and partisanship among English sanitarians. The whole subject has excited fresh interest during the past year. The sewage farms have been sharply criticised, and, on the other hand, as warmly defended. Economists have abused this method of utilizing sewage as costing more than it brings; while sanitarians have not been wanting who complained that because of the stench produced the farms were a greater nuisance than the original condition which they were designed to correct; that the effluent water, the product of the downward filtration, was not devoid of polluting qualities; that infectious properties were imparted to the vegetables raised by means of sewage irrigation and even to the milk of cows fed upon the sewage grass; that the cows themselves suffered injury by such food; that through mismanagement the crops were liable to be flooded with sewage at unexpected moments; and that the growing vegetables assimilated only a part of the elements contained in the liquid manure supplied to them, rejecting entirely the organic portions which had not been changed chemically into ammonia, the nitrates, and the nitrites.

The advocates of this mode of using the contents of sewers have answered objections with much zeal. Conspicuous among these champions is Dr. Alfred Carpenter, who is immediately interested in the working of the well-known Croydon farm of four hundred and sixty acres. In a paper read before the Association of Medical Officers of Health at Birmingham,[1] he discussed the theoretical and practical advantages of sewage farming. He showed that vegetation is the most efficient agent for the purification of sewage. He detailed experiments to prove that plants will assimilate animal matter before its conversion into its ultimate elements; that rye-grass, for example, will thrive on beef-tea. He asserted the falsity of Pettenkofer's notion that the germs of disease may be deodorized but not disinfected in the processes of sewage farming, and maintained that plants appropriate to their own growth all the nitrogenous matter supplied to them. Finally, he contended that, far from influencing unfavorably the health of a district in which they are situated, sewage farms are conducive to the public sanitary welfare, as is shown by the low death-rate of Croydon since the sewage was utilized by irrigation.

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[1] The Sanitary Record, May 1, 1875.

Notwithstanding the effectiveness of such advocacy as that just quoted, it is obvious, if we may judge by the current literature, that sewage farming is not growing in favor and that it is on the defensive. There is a manifest preference for the water-carriage system wherever it is feasible. There are so many practical difficulties in the way of sewage irrigation, touching topography, the selection of a suitable soil, the imperative need of intelligent and vigilant supervision, and the demands of the seasons, that engineers and sanitarians naturally turn first to less complicated and less exacting methods. In this community much that is instructive upon this topic is expected from the investigations now in progress under the authority of the State Board of Health with reference to the pollution of streams in Massachusetts.

It may be remarked in passing that sewage farming is at present receiving a satisfactory test in the vicinity of Paris. The great sandy plain of Gennevilliers affords the best possible conditions, as regards soil, climate, and sewage supply, for producing excellent results; and it is said that these results are already very gratifying.

PROCEEDINGS OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

JAMES R. CHADWICK, M. D., SECRETARY.

MAY 29, 1875. — The president, DR. H. W. WILLIAMS, in the chair.

The Actual Cautery: its Uses and Power. — DR. C. E. BROWN-SÉQUARD addressed the society upon this subject. He said that the importance of the actual cautery as a curative agent had never been fully appreciated, and suggested that its employment had been greatly restricted by the very natural objections of patients. In the last century this treatment was vehemently decried, owing to the suffering inflicted, the theory being that the more intense the pain the greater was the effect. It is a fallacy, however, that the influence of counter-irritation is transmitted by the nerves of feeling. Apparently insignificant irritation, devoid of pain, may produce powerful reflex explosions; for instance, worms in the bowels may cause convulsions, epilepsy, paralysis, or even insanity. Certain nerves exist, by the irritation of which changes of nutrition may be induced. In Guinea-pigs an epileptic attack may be brought on by simply tickling the neck. The human species may be as susceptible as animals. Dr. Brown-Séquard had once ventured to excite epileptic attacks in two male patients, and by that means was led to a mode of treatment by which they were cured; the irritation was not even felt in either instance.

The extent to which the actual cautery may be employed is greatly increased when we realize that the effect is not proportionate to the intensity of the pain, but often the reverse. He had discovered this fact in the years 1848 and 1849, after experimenting in M. Rayer's wards at the Charité Hospital, in Paris, on the different modes of applying the heated iron. He ascertained that the application of an intensely hot metallic cautery, in such a way as to cause very little pain, was of much more service than any painful counter-irritation, the only novelty in the operation being the almost entire freedom from suffering.

Jobert de Lamballe and Valleix have gone too far in extolling the use of the cautery, when they state that they have never known the actual cautery to fail in neuralgia; they surely must have lost sight of many patients. Dr. Brown-Séquard said he had had many bad cases of neuralgia to treat, both recent and chronic, and, though they were not all on record, he was sure that the results would show seven or eight cures in every ten cases.

He had, by means of the cautery, obtained great relief in every case, and often a complete arrest of the intense pain in the chest that accompanies pericarditis, although in no instance had the effect been permanent. One patient was relieved for a whole year after the application of the iron; the pain then recurred, but was again exorcised by the same treatment, and has not been felt since.

In sclerosis of the posterior columns of the cord — locomotor ataxy — he had invariably seen a cessation, or at least a diminution, of the attacks of pain from the employment of the cautery, *loco dolenti*, even when the pain had been of the most intense lancinating character.

The actual cautery is of great use for that variety of pain in the head which is not of inflammatory nature, but is probably due to congestion of the membranes, especially of the dura mater; the pain is described as a bursting sensation, a mental torpor and dullness, a burning, or at times a cutting, and is common in this country. The places at which the iron should be applied are between the shoulder-blades, or on top of the head. The effect is a contraction of the blood-vessels by reflex action. In three cases in which this method was employed, the eye was watched, and it was found that the pupil behaved as it does when the cervical sympathetic nerve is galvanized, that is to say, the pupil is invariably dilated. But no change was detected in the temperature of the face and ear with an ordinary thermometer.

In cases of sunstroke, Dr. Brown-Séquard had found the hot irons very serviceable.

Charcot has shown that in Pott's disease the actual cautery is more efficient than any other treatment; he has made several autopsies in cases of patients who were cured of paraplegia by the cautery; in one of these he found the cord reduced to one tenth of its normal calibre, yet sensation and voluntary movement had been almost entirely restored; the deaths had ensued from some intercurrent affection. Dr. Brown-Séquard's practice confirmed Charcot's estimate of the value of this treatment in Pott's disease.

The use of the cautery in inflammatory disease of the joints is known to be most beneficial.

The cures claimed to have been effected in general paralysis of the insane had been called in question, yet he firmly believed in the possibility of a cure, provided the morbid alterations, not only of the brain proper, but of the medulla oblongata and of the spinal cord, had not advanced too far. Disease does not necessarily arrest the functions of the brain; far from this, destruction of a considerable portion of one or both hemispheres may take place with very little if any disturbance of functions. In a number of cases of the so-called general paralysis of the insane the most satisfactory results had been obtained from the heated iron, and in two instances — one being that of a physician of New York — cures were effected that promise to be permanent.

There is a morbid state in which the power of the actual cautery is especially great: it is coma. In several cases of apoplectic coma, in some of which the life of the patient was recognized by the stertorous breathing to be in imminent peril, Dr. Brown-Séquard had succeeded in restoring mental activity and reëstablishing a normal respiration by applying the heated iron to the head. Some of these patients were manifestly saved from impending death. One of them died two years after having been so saved, and several survived many months.

In chorea the actual cautery may be very useful. He had effected a permanent cure by this method within a week, in one case which had resisted all ordinary means of treatment.

The cautery is very powerful in epilepsy, especially when the disease is due to a blow upon the head, or is caused by congestion or inflammation of the membranes of the brain. Dr. Brown-Séquard took the opportunity to say that those cases of epilepsy that depended upon organic lesions of the cerebral meninges, or of the brain itself, were by far more amenable to this or some other means of treatment than the cases in which no organic lesion of any part of the nervous system existed.

In summing up the cases of organic or functional disease in which the actual cautery is of service, Dr. Brown-Séquard mentioned pain in any region, but especially neuralgia; congestion or inflammation in the brain, the spinal cord, the lungs, the heart, and other viscera; serous effusion into the joints, the pericardium, and the pleura; paralysis agitans; neuroses, especially epilepsy.

The rule to be followed in determining the place of application is to choose that part of the skin which is nearest to the pain. In locomotor ataxy the sensation is referred to the periphery, consequently apply the iron there. This rule is not absolute, as has been seen in the remarks about congestions of the head. In locomotor ataxy apply the iron to the lower limbs, at the spot where the pain is felt, or over muscles attacked with cramp. In cases, however, of myelitis or of spinal meningitis associated with congestion or inflammation of the fibrous tissue uniting the vertebræ, the best place of application is over the tender spots of the spine. Graves pointed out many years ago the importance of making counter-irritation on the lower limbs in paraplegia. In Pott's disease, on the contrary, the application should be made close to the vertebræ.

No special instrument need be used; if the poker is resorted to it should not be applied over a large surface or pressed hard, if it is desired to avoid giving pain. Lines and occasionally points should be made rapidly. The outer layers of the skin are dried up, and fall off after a few days. No sore or scar remains, so that there is no danger of disfiguring the face, or any other part. The most convenient instrument is one consisting of a steel or platinum bulb about the shape of an olive but much smaller. To act safely in a cavity like the mouth, or on a restricted part of the skin, a very small steel bar or shaft may be used, which, when heated, is pushed inside a protecting bulb. Before allowing time for the latter to become heated, it is applied to the part of the skin or mucous membrane which is to be burned, and the heated shaft pushed down upon the part and immediately withdrawn; this contrivance is so safe that it can be used inside the mouth, about the ear, or on the eyelids in neuralgia.

The minimum of pain is obtained with white heat, because the outer layer of the integument is destroyed immediately, and radiation does not take place beyond it, the dried-up cutaneous tissue serving as a screen.

As regards the frequency of the applications, it necessarily varies greatly. In cases of neuralgia five or six lines are to be made three or four times, at intervals of two or three days. A single application is usually sufficient to allay the pain of locomotor ataxy. This treatment must be repeated many times for inflammations or serous effusions, especially when chronic. In neuritis the method may have to be persisted in for years.

Dr. Spring asked at what point the iron should be applied in caries of the vertebræ, and how often.

Dr. Brown-Séquard answered that it should be applied over the seat of the disease, and must be continued even for years if relief was obtained.

In response to **Dr. A. P. Richardson**, it was stated that the best metal for the purpose was platinum, which can easily be washed by acids without fear of its being affected thereby or being eaten by oxidation. Gold has proved too soft, and steel involved a considerable loss of time from the fact that it requires filing before each application, to say nothing of the speedy destruction of the instrument.

Spinal Meningeal Hæmorrhage. — The two cases reported by **Dr. S. G. Webber** were published in the Journal of July 8, 1875.

Myeloid Disease of the Head of the Tibia. — A case was reported by **Dr. D. W. Cheever** which was remarkable from the fact that the man was able to go to New York with the aid of crutches only three days before the amputation. The growth was of two years' duration, but had not invaded the knee-joint. The glands in the thigh were enlarged, so that they were dissected out. The specimen showed how excessively thin and reticulated the bone had become under the action of the tumor. There has been no recurrence of the disease after three years.

A report of the delegates to the annual meeting of the American Medical Association was made by **Dr. H. I. Bowditch**, and was listened to with marked attention.

THE MICHIGAN TROUBLES.

The expected "statement" of the regular faculty of Ann Arbor has appeared. The strongest sentiment it awakens in us is one of sympathy for the writers; to have worked for years in building up the school, to have got it into excellent order, for a school of its kind, and then to be driven from their comfortable positions by quackish interlopers is hard, very hard. Nevertheless, the "statement" does not in any way modify the opinions we have expressed; a duty is none the less one because it is disagreeable.

As has been shown, the whole affair is an evasion. The homœopathic faculty consists of but two professors, with the president of the university, yet the students are guaranteed all the privileges of the regular school, excepting the lectures on practice of medicine and materia medica, and they must be examined in the other branches by the regular professors, who are to give certificates of satisfactory proficiency. Thus the regular professors are compelled to furnish certificates for the homœopathic faculty, which on the strength of these certificates will confer degrees. A single sentence in Dr. Gerrish's letter to the *Medical Record* refutes conclusively the arguments of the writers of the "statement." "If the regular school," he writes, "were to suspend operations altogether, what would become of the new and 'independent' school, with its 'faculty' of two professors and a non-medical figure-head?"

We think that Professor Flint and Dr. J. Marion Sims, the President of the American Medical Association, can hardly have grasped the question when they wrote the rather surprising letters sustaining the faculty which appear in the "statement." Dr. Sims's letter is a remarkable one; the opening boast that he is not a man ever to desert his post is rather surprising from one who spent our war times in making a fortune in Europe. He writes, "The regents have wisely respected your sensibilities in not forcing these new professors upon you as a faculty. They have simply placed them in the same relation to you as they would other lecturers on special branches." (Imagine a special lecturer on homœopathy at Harvard!) "Your autonomy is not disturbed. You are exactly where you were before the appointments were made; and I think, under all the circumstances, you ought not to resign your places."

MEDICAL NOTES.

— The treatment of enlarged lymphatic glands by the subcutaneous injection of tincture of iodine is recommended by S. M. Bradley, F. R. C. S., in a paper printed in the *Lancet* of September 4, 1875. The writer does not recommend this procedure for all hypertrophies of the glands (as, for instance, syphilitic or carcinomatous affections), but applies the treatment to true hypertrophies of the lymphatic glands, with or without a strumous diathesis; secondly, to strumous hypertrophies, that is, cases of cellular hyperplasia with caseous deposit; and, thirdly, to hard, non-infectious lymphomata, which present many points of resemblance to the first groups, and, indeed, are often to be distinguished only in being multiple. For these affections five or six injections of the simple tincture of iodine, — five or ten minims at a time, according to the size of the tumor, — at intervals of about four days, generally effect a cure. The best cases are those where a single cervical gland is hypertrophied in an otherwise healthy adult subject.

— The death smell is the subject of a rather interesting paper by Dr. Isham, published in *The Clinic* of September 4, 1875. Dr. Isham was first impressed with this odor in 1863, when he was an inmate of one of the hospitals in Washington. Its character cannot be clearly described, but the basic perfume resembled that of musk, though more subtle and delicate. The odor has not the sour, moldy character of the cadaveric smell, nor is it a constant accompaniment of death. Usually it is not widely diffused, but comes as a wave of volatile matter. It does not remain long in one locality, and has been noticed by the writer only at a time just preceding the death struggle; never more remote from it than an hour, and frequently not more than from five minutes to half an hour. As to the origin of the odor, Dr. Isham believes it to be due to ammonia and a volatile oil that are contained in the blood. Near the termination of life, the circulation having ceased in the peripheral vessels, chemical changes take place in the blood, exalting its temperature and liberating the volatile principles which are present in the devitalized fluid, and which give rise to the death smell.

The experiments of Lange may help to explain why the odor is not appreciable in all cases of death. He found that when carbonate of ammonia was added to living blood, ammonia was given off only at a temperature of from 176° to 194° F., but when added to blood taken from a dead animal ammonia was given off at a temperature of from 104° to 113° F. In many diseases just previous to death the blood temperature is raised to above the lowest temperature given by Lange, and makes it possible for the volatile principles referred to to be set free. In some diseases, on the other hand, the blood heat falls much below the normal temperature, and no odor is diffused.

— William H. Hoag, M. D., reports in the *Medical Record* of September 11, 1875, another case of remarkable recovery from gun-shot wound. The case is referred to in Circular No. 6 of the Surgeon-General's office. An officer of the 29th New York Volunteers was wounded at Chancellorsville, May 2, 1863. The missile, a round musket ball weighing about four hundred grains, entered the eighth intercostal space of the left side, at a point nine and a half inches to the left of the ensiform cartilage; it fractured the ninth rib, and, without wounding the lung, passed through the diaphragm, and entered some portion of the alimentary canal. The patient walked more than a mile and a half to the rear, and the next day presented himself for treatment, apparently not in the least fatigued by his journey. A hernial tumor of the lung, of the size of a small orange, was found protruding. A ligature which had been placed around it on the field by surgeons who had tried ineffectually to reduce the hernia was removed, and the sphacelated portion separated from the granulating surface beneath. Five days after the injury an ounce of castor-oil was given, and while the patient was at stool a few hours later, the ball was voided. It was somewhat battered from striking the rib, and was quite irregular in shape. Cold-water dressings alone were applied to the wound. The patient's recovery was uninterrupted. On the 2d of June he left for a furlough of sixty days, and on his return the wound was entirely healed; the respiratory sounds were normal, though there was still a slight hernia of the lung. The reporter of this case thinks it probable that the small intestines escaped injury, and that the ball passed into the transverse or descending colon, which is much less likely to take on inflammatory action than the smaller bowel.

— The *Medical Record* publishes a list of the order of lectures for 1875–77 in the principal Eastern medical schools. We do not know how accurate it may be in other respects, but we happen to know that the order of exercises at Harvard has not yet been determined.

— Another remarkable triumph of the antiseptic system is reported in the *Lancet* of August 28th, being no less than the removal of a loose cartilage from the knee-joint under the carbolic spray with a most successful result. The patient, a man aged twenty-two, was admitted into the North Riding Infirmary under the care of Dr. Williams. His history was that four years ago he was working on a night shift, and having occasion to be on his knees, found on rising to the erect posture that he could not straighten his right leg. The leg was painless as long as it was semiflexed, but any attempt to straighten it was attended with much suffering. Eighteen months afterwards he became subject to excruciating pain in the joint when walking, and shortly afterwards a little lump appeared on the inside of the joint, at the lower and inner border of the patella. He continued in this state till the end of July, 1874, when he was forced to put himself under treatment. August 26th, Dr. Williams proceeded to remove the loose body. The joint was quite natural in appearance except below the patella, where there was some little thickening, the result of an accident in childhood. On examination no loose body could be found; but after the patient had walked once or twice across the floor a small body, of the apparent size of a sixpence, was detected on the outer and anterior part of the capsule. The leg was bent on the thigh to keep the loose body in its place. Chloroform was dispensed with. After washing the skin in the vicinity of the joint with an oily solution of carbolic acid (one part in ten), under a spray of carbolic acid lotion (one part in forty), Dr. Williams made an incision two inches in length, its lowest point being an inch higher than the position in which the loose body was felt. The part of the capsule over the body was reached by the finger through the wound, the body was seized with a tenaculum, and pulled out after the capsule had been opened. The body proved to be a flat piece of cartilage about the size of a large bean. The limb was then extended, and dressed antiseptically according to Lister's method. The patient convalesced without serious general disturbance, and there was only a little sanguineous discharge from the wound. September 15th the wound was healed and the cicatrix strong. The patient returned to heavy labor, finding himself fit to engage in it.

— Dr. Cossini, of Damascus, sends to *L'Union Médicale* an account of the outbreak of cholera at Hama, Damascus, and other places in that vicinity. At Hama, a city on the Orontes of from twenty-five thousand to thirty thousand souls, the disease about the middle of March first attacked fourteen soldiers of the garrison, of whom thirteen died within a few days. Early in April it invaded the town itself, and during two months and a half there were from fifteen to twenty deaths a day. The fact that for seventy-five days the epidemic was wholly confined to Hama gave rise to the hope that it was engendered by causes wholly local, and that it would spread no farther. But at length the villages near Hama, and then a city of eighteen thousand inhabitants, nearly thirty miles distant, were attacked. Meanwhile, the garrison of Hama was ordered to Damascus, where it arrived about the 1st of June. On the 13th of June cholera appeared in Damascus, and rapidly spread, so that by the 4th of July it was at its height and causing one hundred and forty to one hundred and fifty deaths daily. In fact, these figures are not large enough, for the Mussulmans conceal as far as they can their deaths, and probably the mortality reached at least two hundred each day. Such a panic seized the inhabitants that the streets were crowded with fugitives, many being attacked with the disease and dying on the road. Those who reached Sayta, Beyrout, and Lebanon carried the disease with them, so that almost all of Syria is invaded by cholera. At Damascus the disease is on the decline. How the disease could arise at Hama, an isolated place situated on the borders of the desert, is a mystery. As to treatment, the only remedy that seemed to Dr. Cossini to be of advantage was a mixture of chloroform with the acetate of ammonia.

— The gross receipts of the revenue derived from the opium trade in India were for the last year £8,324,879. The net receipts for the whole of India were in the same year £6,323,395. The total weight of the opium obtained in the same period was 12,716,991 pounds, and the total acreage in which the poppy is cultivated was returned as 521,270 acres.

LETTER FROM ENGLAND.

Messrs. Editors, — When Tyndall, the retiring president of the British Association, alluded to his speech of last year, he was greeted with a round of applause which was redoubled and prolonged when he stated his opinion that the questions of "things organic and inorganic, of the mind and of things perhaps beyond the reach of mind," were to be encountered, and not avoided. It was evident that he had stimulated thought among others than the Belfast clergy. Sir John Hawkshaw, who was recommended by the government to the Glasgow authorities to help them out of their sewage difficulty, and whose name is prominently associated with the project to tunnel the Straits of Dover, had been elected as Tyndall's successor.

His address was an historical sketch of the profession of engineering, touching lightly on a great variety of subjects, and going deeply into none. He could hardly have excited a ripple of antagonistic thought in the smoothest mind, and the vexed sewage question he let entirely alone. His audience had been got together in so badly ventilated a hall that they were actually driven out by hundreds by the time that the address was half over. The next morning posters were put up in the reception room stating that the ventilation of Colston Hall had been improved, so that Professor Spottiswoode had a full house to see his illustrations of the "colors of polarized light;" but the improvement in ventilation was found to consist in the removal of entire windows, and men and women were to be seen moving about during the whole evening "to get out of the draughts."

In many of the sections at least half the occupants of the rooms were ladies; many of them spoke remarkably well, and they were always listened to with great respect. In fact, the best remarks on school hygiene were made by a young lady teacher.

The greatest variety of questions have been discussed. Yesterday, alone, seventy-four papers and reports were announced to be read. (I have just received a programme of the meeting to take place in Munich, by which I see that six papers are to be read in three days.) When a paper was read on Vegetarianism as a Cure of Intemperance, the writer claiming that there is an antagonism between the two, a gentleman from Bath protested that in that case he should suggest intemperance as a cure for vegetarianism. It was quite discouraging to find the time of a section on economic science and statistics, with Dr. Farr, Dr. Beddoe, Dr. Mouat, Lord Aberdare, and Sir James Alexander on the platform, occupied by a paper by a lady on Domestic Service for Ladies. However, "economic science" is broad enough to cover everything "from Adam's fall to Huldy's bonnet." In the chemical section we have had, among a host of subjects, the Tobacco Trade of Bristol, and the Action of Ethyl Bromobutyrate on Ethyl Acetosodacetate, whatever that may be; the report of the committee on sewage, by Corfield, is to come. Of course there were many papers showing thought and care in their preparation; but the general impression that I got was that most of the members found in "science" a pretty plaything or a nice occupation for men and women who have not much else to do, a mistake which has been encouraged, it seems to me, by some of the first names in English science, and by many others who lecture and write on Elements of Biology for Beginners, and on kindred topics. In fact, I had quite begun to ask myself wherein lay the claim of these people to call themselves an association for the advancement of science, until I heard Professor Rolleston's clear, careful, and searching analysis of the evidence by which he shows that the highly enlightened races are not degenerating; but it was really too bad in him to say that the skull of the human female is smaller and less highly developed than that of the male. One person of few words summed up the experience of one day by saying that she had heard "a deal of nonsense talked," and another said that he thought that there was just enough science in the thing to spoil it.

That the association has done an immense deal of the kind of work that has been done by the South Kensington Museum, excellent work too, no one can doubt. The meetings of this year at least have broadened the channels of thought, but they certainly have not deepened them. There is an advantage in allowing the greatest freedom of thought, and perhaps in permitting all papers to be presented by title; but in the reading, and in the discussions especially, where the digressions from the points at issue were most common, there would have been a decided gain to all if people had followed Virchow's cardinal maxim, and confined themselves in their observations to seeing *was wirklich da ist.*

In the museum of mechanical science the most striking inventions were those by which ladies would be enabled to travel alone in railway cars without insult, and men could do the same without fear of the Müller tragedy or of the demi-monde, and this in the last quarter of the nineteenth century. Of course the irrepressible trap was there to accomplish the impossibility of having a pipe with one open end in the sewer and the other in a sleeping-chamber, and preventing sewer-gas from getting into the house.

In contrast with the Bristol meeting, I was constantly reminded of the concise, clear, and original papers read at the meeting of the British Medical Association, in Edinburgh, a few weeks ago. Everybody was kept closely "to the point" in the discussions; and a great amount of labor beyond reading up must have been expended in preparation. A paper on dysmenorrhœa, by Mrs. Garrett Anderson, took at least three fourths of the members by surprise. She was finally allowed to read it, but the "sentiment of the association" as to repeating the experiment is to be got before the time of another meeting. The presence of Dr. Playfair brought out a large number of health officers, and the "city of lawyers and doctors" attracted much of the culture of the kingdom.

In the section of public health, Ross, Eassie, Fergus, Wanklyn, and many others gave the results of their year's study in the different branches to which they especially devote themselves. The ingenuity with which Eassie unearths hidden and forgotten cess-pools and drains is equaled by the skill with which he applies the remedies. Wanklyn concludes that the presence of organic impurities in water does not forbid its use for drinking, inasmuch as it can always be purified with sufficient care. He says, however, that large quantities of inorganic matter should always condemn water for domestic purposes, as the impurities cannot be removed at reasonable cost, and he thinks that the latter part of his proposition has been too often neglected. The questions of water-supply, water-closets, and sewers, irrigation farms, are too generally settled, and the bugbears are too thoroughly gotten over, to have provoked a very exciting discussion. The prejudice against sewage-farms may be said now to be nearly gone by. People are not made sick by eating their vegetables, the cattle flourish, the milk and butter supply the majority of the families in many places, and the effluent water is freely used for drinking. Dr. Carpenter has done much to contribute to this sensible result, especially since he had his lunch party at Croydon, where nothing was eaten except what had been grown on the farm, and from sewage as manure. If the cities are properly sewered, and the farms are properly managed, there is no offensive smell at all on the irrigation farms; and at Croydon people are building houses close to the irrigated fields.

Mr. Edwin Chadwick, a member of the first General Board of Health of England, in 1848, and whose authority on all subjects in regard to sewerage and drainage is well recognized, lately told me of one of his visits to a sewage farm. His first remark was, "The sewerage of your town is bad." "How do you know?" was the reply; "it is two miles off, and you have never seen it." "I do not need to see it," said he, "*I can smell it.*" What would he have said to Boston, with one of the finest situations in the world, with an increasing death-rate, and where one can hardly go about in August without holding his nose? London needed three epidemics of cholera, and then would hardly have learned the lesson if the members of Parliament had not been fairly driven out of their seats by the stink of the Thames. Glasgow, Edinburgh, and Dublin, Berlin, Frankfort, and Munich, have had their mortality-rate keep up in the thirties before they would learn. We can certainly be sure that there is intelligence enough in Boston not to require such fearful lessons. C. F. F.

BRISTOL, ENGLAND, *August* 28, 1875.

WEEKLY BULLETIN OF PREVALENT DISEASES.

THE following is a bulletin of the diseases prevalent in Massachusetts during the week ending September 25, 1875, compiled under the authority of the State Board of Health from the returns of physicians representing all sections of the State: —

Coincidently with the transition to colder weather, a marked decline in the prevalence of diarrhœal disorders occurred; but there was a corresponding increase in catarrhal affections — bronchitis and influenza. Diphtheria also developed suddenly, the increase being greatest in the city of Boston and its vicinity and in the Connecticut Valley. Typhoid fever has increased. The order of relative prevalence is as follows: Diarrhœa, typhoid fever, dysentery, cholera infantum, cholera morbus, bronchitis, diphtheria, influenza, rheumatism, pneumonia, scarlatina, whooping-cough. The summary of the returns for each section is as follows: —

Berkshire: Diarrhœa, typhoid fever, dysentery, cholera infantum, cholera morbus. Diphtheria in North Adams.

Valley: Typhoid fever, diarrhœa, diphtheria, cholera infantum, cholera morbus, dysentery, bronchitis; an increase of sickness. Diphtheria (generally of mild degree) is in Montague, Shelburne, Conway, Granby, Amherst, Ashfield, Orange, Holyoke, and Springfield.

Midland: Diarrhœa, typhoid fever, dysentery, bronchitis. Fitchburg, Uxbridge, and Webster report diphtheria, in all cases mild in type.

Northeastern: Typhoid fever, diarrhœa, dysentery, cholera infantum, cholera morbus; a general decline in sickness.

Metropolitan: Typhoid fever, diarrhœa, dysentery, bronchitis, cholera infantum, cholera morbus. The cases of diphtheria are reported by physicians in Brighton, Roxbury, Charlestown, East Cambridge, East Boston, and South Boston, but not in the city proper.

Southeastern: Diarrhœa, typhoid fever, dysentery, cholera infantum. Pembroke and South Hanson report severe diphtheria.

F. W. DRAPER, M. D., Registrar.

COMPARATIVE MORTALITY-RATES FOR THE WEEK ENDING SEPT. 18, 1875.

	Estimated Population.	Total Mortality for the Week.	Annual Death-Rate per 1000 during Week.
New York	1,060,000	634	31
Philadelphia	800,000	305	20
Brooklyn	500,000	287	30
Chicago	400,000	177	23
Boston	342,000	208	31
Cincinnati	260,000	95	19
Providence	100,700	36	18
Worcester	50,000	24	25
Lowell	50,000	29	30
Cambridge	48,000	22	24
Fall River	45,000	33	38
Lawrence	35,000	13	19
Lynn	33,000	16	24
Springfield	31,000	10	17
Salem	26,000	12	24

Normal Death-Rate, 17 per 1000.

THE BOSTON SOCIETY FOR MEDICAL OBSERVATION will resume its regular meetings Monday evening, October 4, at 8 o'clock. Dr. Whittier will read a paper on Diphtheria.

CORRECTION. — In review of Engelmann on the Uterus in last week's JOURNAL, transpose the words *latter* and *former* in the first sentence.

RESIGNED AND DISCHARGED. — Thomas Kittredge, M. D., Assistant Surgeon, Second Battalion of Artillery, M. V. M.

BOOKS AND PAMPHLETS RECEIVED. — A Practical Treatise on Diseases of the Eye. By Robert Brundenell Carter, F. R. C. S. London: Macmillan & Co. 1875. (From A. Williams & Co.)

Treatment of Paralyzed Muscles by Elastic Relaxation. By John P. Van Bibber, M. D. (From Transactions of the Medical and Chirurgical Society of Maryland.) 1875.

The Normal Movements of the Unimpregnated Uterus. By Ely Van de Warker, M. D. (From New York Medical Journal.) 1875.

Transactions of the South Carolina Medical Association. Annual Session, 1875. Charleston, S. C. 1875.

Uronology and its Practical Applications. By George M. Kober, M. D. (Reprinted from the Richmond and Louisville Medical Journal.) Louisville. 1875.

The Semi-Tropical. A Monthly Journal devoted to Southern Agriculture and Horticulture, and to Immigration. Vol. I. No. 1. Harrison Read, Editor. Jacksonville, Fla. September, 1875.

Transactions of the College of Physicians of Philadelphia. Third Series. Vol. I. 1875.

A Statement of the Relations of the Faculty of Medicine and Surgery in the University of Michigan to Homœopathy. Detroit. 1875.

Transactions of the Medical and Chirurgical Society of Maryland. Seventy-Seventh Annual Session, held at Baltimore, April, 1875.

Have we Two Brains? Soul and Instinct — Spirit and Intellect. Address by the Rector of St. Mary's Church, Station, O.

Die Resultate der Gelenkresectionen im Kriege. Nach eigenen Erfahrungen von E. Bergmann. Giessen: J. Ricker'sche Buchhandlung. 1874.